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A NEW MILLIPED IN THE GENUS *APHELORIA*
FROM SOUTHERN WEST VIRGINIA, AND THE
TAXONOMIC POSITION OF *RUDILORIA MOHICANA*
(DIPLOPODA, POLYDESMIDA, XYSTODESMIDAE)

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The Appalachian millipeds of the family Xystodesmidae present many problems to the taxonomist, but one of the most difficult is the delimitation within the family of meaningful genera. Genera of unwieldy size (*Nannaria*, *Brachoria*, etc.) are to be found listed with numerous monotypic genera (*Erde-lyia*, *Rudiloria*, etc.). Some of the larger genera, in particular *Apheloria*, *Sigiria*, and *Sigmoria*, are connected by a range of intermediate species that make the genera very difficult to separate. This situation is not necessarily undesirable, if the genera are meaningful groups of related species. The real difficulties arise when monotypic genera are described on the basis of a few "generic characters" rather than on the basis and examination of a whole group of species in an attempt to infer their genetic relationships. Small and monotypic genera are only appropriate, when, in the opinion of experienced taxonomists, a species or small group of species represents a distinct phyletic line.

Though it will be some years before generic categories can be authoritatively established in the family Xystodesmidae, it does seem clear now that quite a number of the smaller genera, and some of the larger ones, will have to be combined in order to present a rational phyletic picture. In the present paper, I describe a new species of *Apheloria* from southern West Virginia that is similar in many ways to the animal known as *Rudiloria mohicana* Causey, described (Causey, 1955) from

Ashland County, Ohio. The similarities between the new species and *mohicana* coupled with several key items in the description of the genus *Rudiloria* strongly suggest that this genus should be synonymized under *Apheloria*.

My thanks to Paul Vogel and Michael McGraw for the animals comprising the type-series of *Apheloria guyandotta* new species, to Nancy Price Platnick for additional material of the new species from Mercer County, West Virginia, and Dr. J. A. L. Cooke, American Museum of Natural History, for the loan of the male holotype of *Rudiloria mohicana*.

***Apheloria guyandotta* new species**

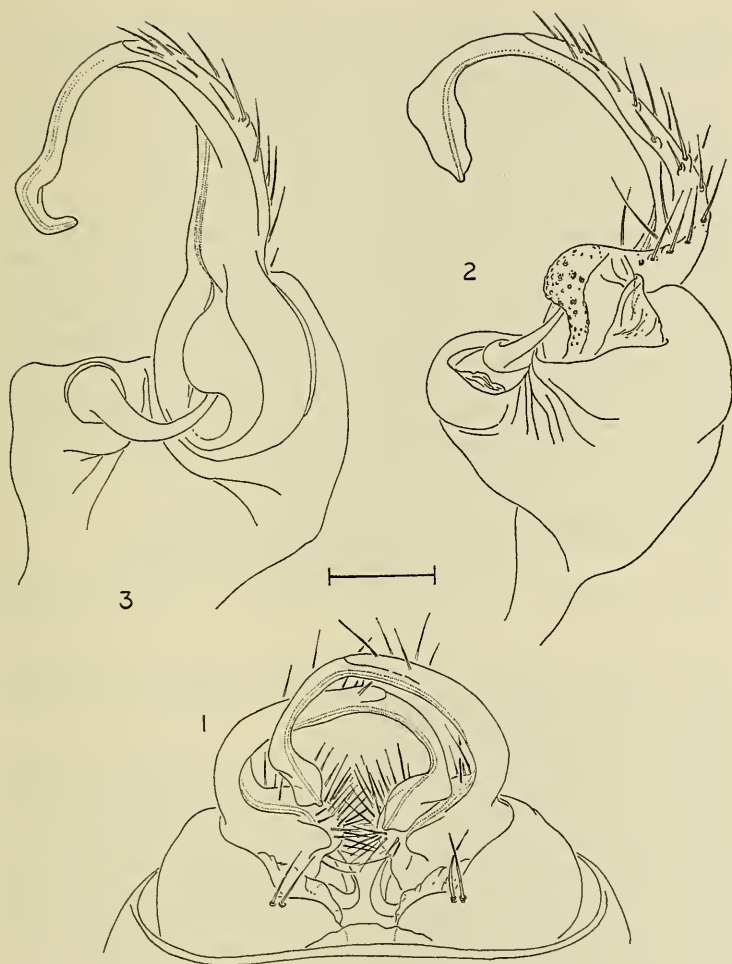
Figures 1, 2

Types: Male holotype and six male and two female paratypes from Shaft Hollow, near McGraws, Wyoming County, West Virginia, collected under logs and rocks by Paul Vogel and Michael McGraw, 28 May to 1 June 1968, deposited in Museum of Comparative Zoology, Cambridge, Massachusetts.

Etymology: The specific epithet is an adjective formed from the name of nearby Guyandotte Mountain.

Diagnosis: Other West Virginia species of *Apheloria* are *A. trimaculata*, *A. corrugata*, and *A. kleinpeteri*. Both *corrugata* (found throughout the state) and *trimaculata* (found only in the easternmost ridges south to Greenbrier County) have the gonopod telopodites coiled in at least a complete circle; *kleinpeteri* (known only from the slopes of East River Mountain) has the telopodites arched as in *guyandotta*, and expanded distally, but *guyandotta* differs in lacking a prefemoral process. *Apheloria corrugata* is black, cross-banded yellow with red paranota, *trimaculata* is black with red median spots and yellow paranota (Greenbrier County) or cross-banded pinkish orange (Pocahontas County), and *kleinpeteri* is solid black with distinctive red paranota. *Apheloria guyandotta* resembles Greenbrier County *trimaculata*, but is about two-thirds the size of *trimaculata*, and differs in the gonopods as described above.

Description of male holotype: Length, 32 mm, width 7.5 mm. Structure typical of species of *Apheloria*. Paranota broad, not raised, heavily rebordered at margins; posterior angles rounded right angles becoming acute posteriorly; anterior margins nearly straight, becoming slightly recurved posteriorly; general impression of paranota is one of almost square lateral projections evenly continuing arch of dorsum. Collum evenly rounded in front, slightly broader than head, posterior angles rounded. Sternum between third legs with two conelike projections which diverge distally. Other sterna not modified. Coxae of anterior legs with small angles ventrodistally that gradually become well-developed spines on posterior legs. Prefemora of legs with long, strong spines nearly three-fourths length of prefemora on posterior legs. Gonopods (Figs. 1, 2):



FIGS. 1-2. *Apheloria guyandotta* n. sp. FIG. 1. Gonopods, in situ, anterior view. FIG. 2. Left gonopod, posteriodorsal view. FIG. 3. *Apheloria mohicana* (Causey), left gonopod, posteriodorsal view. Scale line = 0.35 mm for Fig. 1, 0.30 mm for Figs. 2-3.

Coxae globose, joined in midline by weak membrane; anteriorly with two setae. Prefemora relatively small, not much swollen, heavily setose around pocket receiving distal end of sharply curved coxal solenite. Prefemoral spine absent. Telopodite strongly arched, distally expanded. No torsion evident in telopodite from course of seminal channel. Coloration: collum

black to dark brown with anterior median red spot, posterior corners yellow, extending into diffuse yellow band along posterior margin. Anterior segments dark brown to black, with median red-orange spot tending to contact yellow spots on caudal two-thirds of paranota; on posterior segments median spot is red and completely distinct and separated from yellow paranotal spots. On last four segments, median spot becomes more orangish; anal segment mostly yellow. Legs and venter yellow.

Description of female paratype: Length, 37 mm; width, 8.2 mm. Structure in general as in the male, but larger, broader, dorsum more highly arched. Coloration similar to male; some females in the type-series are lighter brown with median red spot tending to become cross-band contacting paranotal yellow spots. Female genitalia typical of genus.

Distribution: Known from Wyoming and Mercer Counties, West Virginia. In addition to the specimens from the type-locality, I collected a female in Camp Creek State Forest, 21 September 1970, and N. P. Platnick collected a male in the same place on 20 June 1971. A few females from Logan County, West Virginia, that are superficially similar to females of *A. guyandotta* may also belong to this species.

Apheloria mohicana (Causey) NEW COMBINATION

Figure 3

Rudiloria mohicana Causey, 1955, Proc. Biol. Soc. Washington, 68:28, fig. 6, ♂.

Types: Male holotype from Mohican State Park, Ashland County, Ohio, collected August 1951, by Leroy Gray. Deposited in American Museum of Natural History, examined.

Description of male holotype: Specimen in three fragments, length between 25 and 30 mm, width ca. 6 mm. Head anomalous with large swelling above left antenna. Paranota broad, not raised, moderately re-bordered, posterior angles broadly rounded right angles, anterior margins slightly recurved, anterior angles of paranota broadly and evenly rounded, not nearly square as in *A. guyandotta*; paranota evenly continue arch of dorsum. Anterior margin of collum evenly rounded, posterior edge slightly sinuate. Sternum between third legs with two unequal projections that are closely appressed, not divergent and cone shaped. Other sterna unmodified. Coxae of anterior legs without any sign of spines; ventrodistal angles becoming acute on posterior legs; coxae of last few pairs of legs with evident spines. Prefemoral spines moderate, about one-half length of segment. Gonopod (Fig. 3) very similar to that of *A. guyandotta*, but more arched, distal expansion not so evident, curved into definite hook. Causey (1955) described color pattern as dark brown, with yellow paranota and cross-bands; specimen has since faded to even light brown. Females unknown.

Distribution: Known only from the type-locality, but probably occurs in much of the hill country in southern Ohio.

Notes on synonymy: Causey (1955) set up the genus *Rudiloria* for *R. mohicana*, the type and only species, on the basis of the small body size of *mohicana* and the lack of a prefemoral spine on the gonopods. In all other characters, the species is typical of *Apheloria*. Relative body size is unsuitable as a measure of distinctness in millipeds, since geographic variation in size and proportions is a widespread phenomenon in the group, with its tendency to form isolated populations that then respond to local selective pressures. The prefemoral spine on the gonopods is probably a degenerating character. It is highly prominent and sometimes branched in the species usually assigned to *Sigmoria* and *Sigiria*, and in species of *Apheloria* sensu strictu is usually small and acute. In some midwestern populations of *A. corrugata*, the spine is nearly absent and nubbinlike. Thus neither of the characters used to differentiate species of *Rudiloria* from those of *Apheloria* are really indicative of phyletic distinctness, and *Rudiloria mohicana* should henceforth be considered a species of *Apheloria*.

LITERATURE CITED

- CAUSEY, N. B. 1955. New records and descriptions of polydesmoid millipeds (Order Polydesmida) from the eastern United States. Proc. Biol. Soc. Washington 68:21-30.

